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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,589	07/30/2003	Guoyan Zheng	8932-734-999	6209

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EXAMINER	
ROY, BAISAKHI	

ART UNIT	PAPER NUMBER
3737	

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/629,589	ZHENG ET AL.	
	Examiner	Art Unit	
	Baisakhi Roy	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 6/9/05 have been fully considered but they are not persuasive. Applicant is directed to Charles et al. reference, which teaches generating a 3D representation of a bone with representation of various portions of the bone overlaid on a display device (col. 17 lines 10-25, col. 20 lines 25-67, col. 21 lines 1-34, col. 22 lines 49-63) where the orientation of the 3D representation is determined using the difference between orientations of the images (col. 21 lines 45-67). Krause et al. also teach obtaining images of various orientations of a bone and generating a 3D model (col. 4 lines 15-47).

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined

under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-3, 5-9, 12-20, and 23-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Charles, Jr. et al. (6816564).

Regarding claims 1 and 27, 31, Charles, Jr. et al. disclose a method and apparatus to prepare a virtual three-dimensional representation of a first portion of a bone with said system comprising a processor in communication with a display device to obtain a first image data of the first portion of the bone from a first orientation, obtaining second image data of the first portion of the bone from a second orientation, generating a three dimensional virtual representation of the first portion of the bone, and displaying the 3D representation of the bone with an orientation determined from the difference between the first and second image data (col. 2 lines 64-67, col. 3 lines 17-32, col. 10 lines 17-23 lines 35-48, col. 17 lines 10-26, col. 20 lines 24-67, col. 21 lines 1-19).

Regarding claims 2 and 3, Charles, Jr. et al. teach said first and second images to be a two-dimensional image (col. 17 lines 10-26).

Regarding claims 5 and 6, the reference teaches displaying an image of the first portion of the bone which comprises data from at least one of the first and second image data and overlaying the displayed 3D representation of the first portion of the bone and the image of the first portion of the bone (col. 3 lines 32-46, col. 10 lines 17-27 lines 35-48).

Regarding claims 7-9 and 18-20, the reference teaches method of adjusting a dimension of the first and second portion of the bone such as the

cross-sectional area/diameter and length or long axis of the bone (col.17 lines 20-26).

Regarding claims 12-14 and 23-25, the reference teaches determining an intraoperative orientation of the bone or the orientation of the displayed 3D virtual representation by securing a set of energy detectors and detecting energy emitted by the energy emitters, and updating changes in the 3D representation in response of changes in the intraoperative changes in the first portion of the bone (col. 8 lines 28-67, col. 12 lines 12-25).

Regarding claims 15-17 and 28-29, the reference teaches obtaining third image data of the second portion of the bone, fourth image data of the first portion of the bone, generating a 3D virtual representation of the second portion of the bone, and displaying the virtual representation of the second portion of the bone with an orientation determined from the difference between the third and fourth image data (col. 3 lines 32-46 lines 56-65, col. 4 lines 1-11, col. 10 lines 17-27 lines 35-48).

Regarding claim 26, the reference teaches the method where the first and second portions of the separated and analysis of the respective virtual representation of the first and second bones (col. 12 lines 1-8).

Regarding claim 30, the reference further teaches identifying a longitudinal axis of the displayed image where the first portion of the bone extends along said axis (col. 10 lines 64-67, col. 11 lines 1-11).

3. Claims 1-4, 12, 23, 27, and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Krause et al. (6711432).

Regarding claims 1, 4, 27, and 31, Krause et al. disclose a method and apparatus to prepare a virtual three-dimensional representation of a first portion of a bone with said system comprising a processor in communication with a display device to obtain a first image data of the first portion of the bone from a first orientation, obtaining second image data of the first portion of the bone from a second orientation, generating a three dimensional virtual representation of the first portion of the bone, and displaying the 3D representation of the bone with an orientation determined from the difference between the first and second image data (col. 2 lines 12-45, col. 5 lines 5-15 lines 58-67, col. 6 lines 40-51, col. 7 lines 21-44).

Regarding claims 2 and 3, Krause et al. teach said first and second images to be two-dimensional images (col. 6 lines 18-24).

Regarding claims 12 and 23, Krause et al. teach determining an intraopérative orientation of the bone or the orientation of the displayed 3D virtual representation by securing a set of energy detectors and detecting energy emitted by the energy emitters, and updating changes in the 3D representation in response of changes in the intraoperative changes in the first portion of the bone (col. 2 lines 32-39, col. 5 lines 5-15).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Charles, Jr. et al. in view of Krause et al. (6711432). Charles, Jr, et al. do not explicitly teach said first and second images to be a fluoroscope image. Krause et al. disclose a method of generating a three-dimensional virtual representation of a portion of a bone from two-dimensional first and second images with said images being fluoroscopic images (col. 2 lines 18-39, col. 6 lines 10-51, col. 7 lines 1-8). It would have therefore been obvious to one of ordinary skill in the art to use the fluoroscopic imaging method teaching by Krause et al. to modify the teaching by Charles, Jr. et al. for the purpose of generating two-dimensional fluoroscopic images.

Claims 10, 11, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Charles, Jr. et al. in view of Pelletier et al. (6560476). Charles, Jr. et al. do not teach said 3D virtual representation comprise a cylindrical portion with a lower symmetry than the bone portion. Pelletier et al. disclose a method of preparing a virtual three-dimensional representation of a bone with said 3D virtual representation to comprise a cylindrical portion (col. 6 lines 8-30). It would have therefore been obvious to one of ordinary skill in the art to use the 3D representation teaching by Pelletier et al. to modify the teaching by Charles, Jr. et al. for the purpose of creating a virtual representation with a cylindrical portion which may preferably be rotated about the central axis without changing the apparent orientation of the virtual representation.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Baisakhi Roy whose telephone number is 571-272-7139. The examiner can normally be reached on M-F (7:30 a.m. - 4p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

B.R.

BR

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